

THE LEIBNIZIAN "CIRCLE"

by *Fabrizio Mondadori*

"One should always be a little improbable," O. Wilde.

0. *Honni soit qui mal y pense.*

Let me start with a word of caution: there is no (vicious) circularity in the Leibnizian "circle." Certainly not the same kind of (allegedly vicious) circularity one can find, or Arnauld thought he had found,¹ in a more famous circle—the Cartesian circle. For one thing, as we shall see later the Leibnizian "circle" (what I call the "circle" proper in §1 below) is the distinguishing trait of the grand *circular* design Leibniz—unlike Descartes—very likely meant his metaphysical "system" to be—which is definitely *not* true of the Cartesian circle with respect to Descartes's own metaphysical system. For another, whereas Descartes was clearly *not* aware of the Cartesian circle, I suspect that Leibniz was perfectly conscious of the Leibnizian "circle"—but this is only a (bold) conjecture on my part.

I should add, however, that I am not *really* convinced that it is appropriate to employ the notion of a "circle" (i.e., roughly, of an argument whose conclusion appears among its premisses)—except perhaps in a purely Pickwickian sense thereof; hence the quotes around "circle" both in the title and in the text: "family of interconnected (and/or interdefinable) notions/doctrines/theories . . ." looks like a more accurate and less tendentious terminology. Later on I shall want to distinguish between the "circle" proper and the family of interconnected (and/or interdefinable) notions/doctrines/theories. For the moment let me simply use the phrase "Leibnizian circle" to refer to a "family" of interconnected notions, doctrines, etc., whose members I shall now proceed to enumerate: the doctrine of (universal) Harmony; the theory of complete concepts; the notion of a complete concept; the notion of expression; the notion of connection; the notion of compossibility; and the mirroring principle. (For obvious reasons, the order is *unimportant*.)

What is the philosophical and metaphysical significance of the Leibnizian "circle"? Very likely, *at least* the following: one's (I mean, Leibniz's) description, and understanding, of reality—of *the* World—has no natural ultimate

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starting point (except *perhaps* the assumption that each individual substance exemplifies a complete concept, or the attendant view that monads are the stuff reality is made on); no natural middle point; and no end point whatsoever.

In other words, between the notions, doctrines, etc., one (I mean, Leibniz) employs in order to describe and understand reality, *roughly* the same trade-off obtains that Frege thought obtained between the meaning of a sentence and the meanings of its constituents. Frege's celebrated and often misinterpreted dictum (that "Only in the context of a sentence does a word have a meaning"), and the complementary view (also Frege's) that the meaning of a sentence is a function of the meanings of its constituents, are partly explicated by Dummett in the following way:

in the order of *explanation* the sense of a sentence is primary, but in the order of *recognition* the sense of a word is primary . . . we understand [a] sentence—grasp its sense—by knowing the senses of its constituents, and, as it were, compounding them in a way that is determined by the manner in which the words themselves are put together to form the sentence. We thus derive our knowledge of the sense of any given sentence from our previous knowledge of the senses of the words that compose it, together with our observation of the way in which they are combined in that sentence. It is this which I intended to express by saying that, for Frege, the sense of a word is primary, and that of a sentence secondary, in the order of recognition: . . . But, when we come to give any general explanation of what it is for sentences and words to have a sense, that is, of what it is for us to grasp their sense, then the order of priority is reversed. For Frege, the sense of a word or of any expression not a sentence can be understood only as consisting in the contribution which it makes to determining the sense of any sentence in which it may occur. . . . If this is so, then, on pain of circularity, the general notion of the sense possessed by a sentence must be capable of being explained without reference to the notion of the senses of constituent words or expressions. This is possible via the conception of truth-conditions: . . .²

Something more than a mere analogue of the trade-off between the meaning of a sentence and the meanings of its constituents, however, is involved in the Leibnizian "circle"—and not just because so many more notions (doctrines, etc.) belong to the latter; but essentially because each of the notions, doctrines, etc., that are members of the "circle" sends you around to most, if not all, of the remaining notions, doctrines, etc.: there is no way of breaking out of the "circle." Thus, for instance, the mirroring principle sends you around to the notion of compossibility, which in turn sends you around to that of expression, which in turn sends you around to that of connection, which in turn sends you around to the mirroring principle, . . . and so on. . . .

Or, to borrow Dummett's terminology: on pain of circularity, the notion of compossibility must be capable of being explained (or accounted for), but it is not, without reference to the mirroring principle. On pain of circularity, the notion of expression must be capable of being explained (or accounted for), but it is not, without reference to the notion of connection. On pain of circularity, the view that the concepts exemplified by actual individual substances are complete and mutually compossible must be capable of being

explained (or accounted for), but it is not, without reference to the view that the universe expressed by each individual substance is the same. And so on; and so forth.

This maze of interconnected loops is more or less what I mean by the Leibnizian "circle": the "family" of interconnected notions, doctrines, etc., enumerated above. And here one is almost tempted to say: *Honni soit qui mal y pense*—if the notion of a "circle" is taken in a derogatory sense. Let me now provide a more detailed analysis of the various components of the "circle"/"family." How they interrelate and their interdefinability will be described at a later stage of the paper.

0.1. The theory of complete concepts.

To begin with a negative point: Leibniz explicitly rejected the view that a complete concept is made up of *all* the properties of the individual exemplifying it. His view, rather, was that

all the predicates of Adam depend or do not depend upon other predicates of the same Adam. Setting aside . . . those that do not depend upon others, one has only to consider together all the basic predicates in order to form the complete concept of Adam adequate to deduce from it everything that is ever to happen to him. (CA, 48; cf. also CA, 44, 46)

What amounts to pretty much the same view can also be found in the following passage from the *Discourse*:

God seeing the individual notion . . . of Alexander sees in it at the same time the foundation and reason of all the predicates that can be truly said of him. (DM, 13)

So the idea is: the set of *all* the properties of a(ny) given individual substance *s* contains a proper subset from which the remaining properties of *s* can somehow be deduced or inferred. (The same, or roughly the same, picture, one gets from Leibniz's talk of a "law of the continuation of the series," in *L*, 360, 458, 500, 504, 537.) The subset in question is precisely what Leibniz refers to as the "complete concept" exemplified by *s*, whereas the "law of the series" just alluded to is best regarded as the counterpart in actuality to the given complete concept in the realm of possibility.

It should also be added that on Leibniz's view (a) each individual substance exemplifies exactly one complete concept (and conversely, each exemplified complete concept is exemplified by exactly one individual substance), the concept in question constituting the essence of the substance in question (see *DM*, 21; *CA*, 45, 47); (b) (= the mirroring principle) each complete individual concept "mirrors" (in a sense to be explained in §0.2 below) all the other complete individual concepts in a given (possible) world³ (see for example *C*, 15, 19),⁴ so that each individual substance can be said to *express* the whole universe from its own point of view; and (c) one of the consequences of the fact that the concept of each individual substance is complete is that each individual substance expresses the whole universe from its own point of view (cf. *CA*, 145-146; *DM*, 14). (We shall see below that it makes perfectly good

sense to take completeness to "imply," at least in part, "mirroring," so that (b) and (c) turn out to be virtually equivalent.)

As I have shown elsewhere,⁵ (a) has the rather startling consequence that *all* the properties of a given individual substance are essential to it: or, in possible-worlds terms, that no actual individual substance can exist in more than one possible world—and hence, in particular, that no complete individual concept does in fact belong to more than one possible world.

This, in a nutshell, is the theory of complete concepts. Two important questions have been sidestepped, however, *et pour cause* (they raise problems which fortunately lie outside the scope of the present paper): first, What sort of properties should be regarded as belonging to the complete concept exemplified by a given individual substance? And second, Do the properties in question include *relational* properties as well? I have no definite answer to the first question: but a plausible guess is that each complete individual concept contains at least a number of individual, *as well as* generic, essential properties⁶—plus the laws of the universe to which the individual substance possessing those properties belongs (see *CA*, 43, 55, 56). Whether the latter are indeed sufficient, together with the laws, for the derivation of the remaining properties of the substance (indeed, of the entire universe) in question, is not at all clear: perhaps something more might (or ought to) be put into the complete concept. If so, what it is that has to be added remains (to me at least) pretty much of a mystery. For instance, should relational properties be taken to belong to the complete concept exemplified by a given individual substance? This was our second question. And again, the answer to it unfortunately cannot be as definite as one would like it to be: *my* view, however, in spite of what I may seem to have implied above and of (b) of a couple of paragraphs back, is that on Leibniz's view they should *not* be taken to be members of complete individual concepts—whether exemplified or not.⁷ So much for the two sidestepped questions and the problems they raise: let me now turn to an analysis of the notion of compossibility.

0.2. Compossibility.

What is it for each complete individual concept to "mirror" all the other complete individual concepts in a given (possible) world? To answer this question and to provide an account of the notion of compossibility is, I should like to suggest, pretty much the same thing. But this is not all. A consequence of the mirroring principle was, it will be recalled, that each individual substance can be said to *express* the whole universe (world) from its own point of view. Does this imply that compossibility is (part of) what enables a given individual substance to express the whole universe (world) from its own point of view? Notice that once we have answered *this* question we will be in a position to explain (at least in part: for we still have to provide an account of the notion of expression) why each individual substance expresses the whole universe (world) from its own point of view *as a result* of

each (exemplified) complete individual concept's "mirroring" all the other (exemplified) individual concepts. We will also be in a position to provide *some* evidence for my claim in §0.1 above that completeness implies, at least in part, "mirroring."

Well then: what is "compossible" true of? That is, more accurately: what is going to fill the blanks in "— is compossible with —"? The obvious answer is: singular terms denoting or naming complete concepts (or variables ranging over complete concepts). Thus suppose we have a statement of the form, " α is compossible with β ," where " α " and " β " denote or name complete concepts. Under what conditions is it true? Following a suggestion due to Benson Mates,⁸ we might suggest that it is true just in case α and β belong to the *same* possible world, or just in case the individuals, if any, exemplifying them inhabit the same world—but this does not appear to throw much light on the meaning (in some intuitive sense of "meaning") of "compossible." What we need is an analysis of "compossible" from which it *follows* that " α is compossible with β " is true just in case α and β are members of the same possible world: and what we want is an independent characterization of (the notion of) compossibility. I propose the following.⁹

We might say (C1) that to claim that, for any complete individual concepts x and y , x and y are (mutually) compossible is to claim that, for any property ϕ , if ϕ is a member of y (respectively, x), then it is possible (I mean, *objectively* possible) to deduce from x (respectively, y) that ϕ is a member of y (respectively, x); and (C2) that to claim that, for any complete individual concepts x and y , x is *not* compossible with y is to claim that there is a property ϕ such that ϕ is a member of y and it is not possible to deduce from x that ϕ is a member of y . Given (C1) and (C2), it is quite natural to proceed to characterize a possible world as a set of mutually compossible complete concepts—in the sense of "compossible" I have just explained. A statement such as " α is compossible with β " would then be true just in case α and β belong to the same possible world—which is precisely the result we wanted.

Is there any reason at all, however, for supposing that Leibniz would have regarded (C1) and (C2) of the previous paragraph as (satisfactory) explications of the notion of compossibility? Well, *if*, as I have suggested above, compossibility is indeed what makes "mirroring" possible (and conversely, in a way), then (C1) and (C2) are fully justified. For they can be taken to imply, in particular, that each exemplified complete concept "mirrors" all the other exemplified complete concepts. Compossibility, then, *is* (part of) what makes "mirroring" possible: it is also what allows it to have the meaning it most likely has in Leibniz's metaphysics—viz., to say that a given (exemplified) complete concept "mirrors" all the other (exemplified) complete concepts is to say that it is possible (*objectively* possible, I mean) to *deduce* from the former all the properties belonging to the latter. Further, since the theory of complete concepts entails, among other things (see §0.1 above), that each

complete individual concept "mirrors" all the other complete individual concepts in a given (possible) world, we also have a way of accounting for (C1) and (C2): quite simply, (C1) and (C2) are *required* by the theory of complete concepts itself.

We already have some sort of "circle" here. On the one hand, (C1) and (C2) appear to acquire whatever sense they have from the mirroring principle (that is, there would be little or no justification for them in the absence of something like the principle in question). On the other hand, (C1) and (C2) account for, and make possible the application of, the principle itself (that is, there would be little or no justification for the mirroring principle in the absence of something like (C1) and (C2), i.e., in the absence of something like the notion of compossibility).

At this point we are just about ready to answer the question I raised at the beginning of the present section—namely: Is compossibility (part of) what enables a given individual substance to express the same universe (world) from its own point of view? The answer should be fairly obvious: it most certainly is—at least in view of the facts (1) that, as we have just seen, it is so intimately associated with the mirroring principle, and (2) that, as we shall presently see, the mirroring principle is itself responsible for each individual substance's expressing the whole universe (world) from its own point of view. (A slightly different account of "— expresses —" will be provided in §0.3 below.)

Now for the other question I raised at the beginning of the present section—namely: Why does each actual individual substance express the whole universe (world) from its own point of view *as a result* of each complete individual concept's "mirroring" all the other individual concepts exemplified in our own world? Well, we know what it is for a given complete concept *c* to "mirror" all the other complete concepts in a given (possible) world: roughly, it is for all the properties contained in them to be deducible from *c*.

We *also* know, from §0.1 above, that each (actual) individual substance exemplifies exactly one complete concept (and conversely, that each exemplified complete concept is exemplified by exactly one individual substance). More precisely, in view of the mirroring principle we know that each (actual) individual substance exemplifies a complete individual concept which "mirrors" (in the sense explained above) all the complete individual concepts exemplified in our world.

At this point the answer to our question is not hard to find: since, as we have just seen, (1) each (exemplified) complete concept "mirrors" all the other (exemplified) complete concepts,¹⁰ and (2) each individual substance exemplifies exactly one complete concept (and each exemplified complete concept is exemplified by exactly one individual substance), it follows that each individual substance *expresses* the universe (world) from its own point of view—which assumes, and rightly so, I believe (see §0.3 below), that the

notion of *expression* is understood in terms of that of deducibility via the completeness of concepts.

This now brings me to the third point I raised at the beginning of the present section: I mean the claim that the completeness of concepts implies, at least in part (and in some intuitive sense of "implies"), the mirroring principle. The following passages appear to provide a certain amount of textual evidence for the claim I have just made:

Every individual substance involves the whole universe in its perfect [i.e., complete] concept. . . . (L, 269; see also L, 524-525)

. . . it is in the nature of an individual substance to have such a complete concept, whence can be inferred everything that one can attribute to it, and even the whole universe because of the connexions between things. (CA, 44)

The first of the two passages just quoted can plausibly be taken to mean that from the "perfect" (i.e., complete: see L, 268) concept of a given individual substance it is possible to deduce all the properties of all the individual substances inhabiting our own world. But this is just another and more complicated way of saying that each (exemplified) complete concept "mirrors" all the other (exemplified) complete concepts. What makes the deduction, and hence the "mirroring," possible (only in part, however, since completeness does not guarantee compossibility, and the mirroring principle only applies to sets of mutually *compossible* complete concepts) is the fact that the concepts exemplified by individual substances are *complete*: it is precisely this which I intended to express by saying that the completeness of concepts "entails," at least in part, the mirroring principle. If we bring into the picture either the notion of compossibility, or that of connection (see below), we can easily get rid of the qualification, "at least in part": so that the mirroring principle turns out to be a consequence either of the completeness and mutual compossibility of (exemplified) individual concepts, or of the completeness of (exemplified) individual concepts and of the view that all things are connected.

Things are definitely slightly more complicated when it comes to interpreting the second of the two passages quoted a couple of paragraphs back. Complications or not, I suggest that the passage under present analysis *might* be regarded as a more precise formulation of the view put forth in the first, at least owing to the fact that the notion of completeness is now supplemented with that of connection (between things). The picture we get can be described thus: main assumption: each individual substance is connected with all other individual substances. Since however each individual substance exemplifies a concept from which "everything that one can attribute to it" is deducible, and since one of the things that can be attributed to it is (given the above assumption) that, e.g., it is connected in such-and-such a way with such-and-such a substance, one of the items deducible from the complete concept of a given individual substance is precisely that it is connected in such-and-such a way

with such-and-such a substance. Each "type" of connection—whether between a given substance *s* and a different substance *s'*, or between *s* and *The Floating Opera*, or between *s* and the everlasting trace of the bright, the droll, the charming things you and I like to remember—will obviously produce one more item to be deduced from the complete concept of a given individual substance. Assuming that this picture is coherent (see note 11 below), it is easily seen that, if we allow for enough "types" of connections, we shall quickly describe (as well as derive) the entire universe: and hence that what accounts for the mirroring principle is the completeness of concepts—plus, in the present case, what Leibniz calls (in *DM*, 13) the "connection of things."

At this point an interesting problem arises (a side-effect, as we shall see in §§0.5 and 1, of the Leibnizian "circle"). I have said in the previous paragraph that the second of the two passages just discussed might be regarded as a "more precise" formulation of the view put forth in the first. It was a very weak and somewhat optimistic "might," however: for that passage is in fact neither a *more precise* formulation, nor a *formulation*, whether precise or not, of the view in question. For, speaking with "metaphysical rigour" (to borrow one of Leibniz's pet phrases—see, e.g., *L*, 269), there could possibly be no connections between substances *before* substances are created, that is, before the corresponding complete concepts are exemplified. But if there could possibly be no connections between substances before substances are created, what does it mean to say that from the complete concept exemplified by a given individual substance "can be inferred . . . the whole universe *because of* the connexions between things" (italics mine)—since whatever properties (relational as well as nonrelational) a substance has, follow from its complete concept? On the view that all the properties a given individual substance possesses are deducible from its complete concept, the "connexions between things" ought to be a consequence of the completeness of concepts; and *not*, there being no connections between substances before substances are created, part of what accounts for it, and hence for the fact that the "whole universe" can be inferred from any given (exemplified) complete concept. (See note 11 below, however.)

The obvious way out of the problem is to say that Leibniz was being sloppy, careless, or what have you, in the passage under present analysis: but this still leaves us with the interesting question, Is there a way of making sense of what he says in that passage? What we want is a way of making sense which (a) does not conflate the two levels Leibniz *appears* to conflate (in §0.5 below I refer to them as the "level" of possibility, i.e., roughly, that of complete concepts, and the "level" of actuality, i.e., roughly, that of the substances exemplifying the concepts in question), and (b) saves as much as possible of the spirit, if not the letter, of Leibniz's claim. I suggest the following.¹¹

Since, as I have pointed out a couple of paragraphs back, there can be no connections between substances before substances are created, the connec-

tions we are after must be connections between complete concepts (or else derivable from them): there is no other choice. But what type of connection? Again, there is only one choice: to say of two complete concepts that they are connected is to say that they are mutually *compossible*. The type of connection between complete concepts we are after, then, is provided by (the relation of) compossibility.

In view of the way in which I have characterized above (the notion of) compossibility, it now becomes possible to make sense of Leibniz's claim that from the complete concept exemplified by a given actual individual substance "can be inferred . . . the whole universe because of the connexions between things." Here the "connexion[s] between things" is just the counterpart in the actual world to the compossibility between the concepts exemplified by the things (substances) in question. The latter, indeed, is readily seen to be what accounts for the former: it is precisely *because* any two exemplified complete concepts are compossible that the individual substances exemplifying them can be said to be connected;¹² thus the view that all individual substances are connected turns out to be a fairly natural consequence of the view that the (complete) individual concepts exemplified by them are mutually compossible.

But to return to the mirroring principle. Its (metaphysical) underpinnings are provided by the completeness and mutual compossibility of exemplified individual concepts (or else by the former and the view that all things are connected)—at least given the interpretation of Leibniz's passage I have suggested above. We have something like the following picture: completeness and compossibility jointly account for the mirroring principle; completeness and the mirroring principle, in turn, jointly provide some sort of *Lebensraum* for compossibility—that is, there would be little or no point to the claim that two concepts are compossible unless (a) the concepts in question are complete and (b) the mirroring principle holds.

This is one more instance (within a single interpretation) of the Leibnizian "circle"—more of a *well-behaved* family, so far, than of a *vicious* circle. Still, the tight interconnection between—if not straight interdefinability of—the various components of the family is characteristically there, each of the notions/doctrines, etc., in the family sending you around to one or more of the remaining ones—this much at least we are slowly but steadily beginning to see. To this effect, consider for instance the following passage, which brings together some of the notions I have been talking about in the previous pages:

Now this mutual *connection* or accommodation of all created things to each other and of each to all the rest causes each single substance to have relations which *express* all the others and consequently to be a perpetual living *mirror* of the universe. (L, 648—italics mine)

Exactly what to make of the passage I have just quoted is somewhat of a problem: but perhaps the following (partial) interpretation will do: the

"mutual connection . . . of all created things to each other" should simply be regarded as a result of the complete concepts exemplified by "all created things" being mutually *compossible* (see notes 11 and 12, however). This enables us to regard relations, in particular, as directly "reducible" to compossibility (and ultimately to completeness), and the mirroring principle, as applied to actual substances (Leibniz's "living mirrors") rather than to the concepts they exemplify, as a result of the completeness plus the mutual compossibility of concepts. Some of this we have already seen. (We have *also* seen, it will be recalled, that the interpretation I have just proposed can be turned upside down—without, it should be pointed out, appreciably altering the overall picture: it is only a question of perspective.) A question however remains: How should we understand the notion of *expression*?

0.3. Expression.

What I take to be Leibniz's "definitive" view concerning the relation between the notion of a complete concept and that of expression (at least insofar as the latter occurs in the context "— is an expression of the whole/same universe") is contained in the following passage:

By the concept of substance or complete entity in general, which implies that its present state is always a natural consequence of its preceding state, it follows that the nature of every individual substance . . . is to express the universe. (CA, 145-146; see also CA, 64; DM, 14; L, 711-712)

Nothing particularly surprising in the view that the present state of a given substance *s* is a natural consequence of its preceding state: that view is itself a natural consequence of the fact that *s* exemplifies a complete concept, whereof the entire *history* of *s* is itself a necessary consequence (cf. also CA, 170, and §0.4 below). What *is* somewhat surprising, on the other hand, is that the fact that each individual substance exemplifies a complete concept should be said to entail that each individual substance *expresses* the (whole) universe (which is part of what I take Leibniz to be saying in the passage under present analysis).¹³ Why should this be so? In order to answer this question, we shall first have to answer another, equally tricky and somewhat elusive question: What is expression? Or better, since "expression" and "expresses" are usually defined in context by Leibniz: What is it for one individual substance to express another individual substance (or the whole universe, for that matter)? On Leibniz's view, "One thing *expresses* another . . . when there exists a constant and fixed relationship between what can be said of one and of the other" (CA, 144).

I am *not* going to provide a full-fledged analysis of what Leibniz means by this definition—that is, an analysis which takes care of all the contexts wherein "— expresses —" or "— is an expression of —" can meaningfully occur (according to Leibniz): nor shall I try to provide an explanation of Leibniz's other (contextual) definitions of "expresses" and "expression" (see

e.g. C, 15; L, 206). Rather, I shall try only to interpret the above definition for the contexts wherein the blanks in "— expresses —" and "— is an expression of —" are filled by "Each individual substance" and "the whole (or: the same) universe," respectively (how to extend the interpretation I suggest below to contexts wherein "the whole universe" is replaced by "every other substance" will be pretty obvious).

The interpretation I should like to propose is fairly simple, and has the merit (if indeed it is a merit) of making *almost* trivial Leibniz's view that each individual substance expresses the whole universe as a result of exemplifying a complete concept.¹⁴ To begin with, the claim that each individual substance expresses the whole universe can be understood to mean that there is a "constant and fixed relationship between what can be said of one and of the other"—"the one," "the other," and the "what" being a given individual substance, the whole universe, and whatever properties pertain to both of them, respectively. In other words, and more precisely: we should answer the question, When does a given individual substance express the whole universe? by saying, with Leibniz, When there is a "constant and fixed relationship between what can be said of one and of the other."

This of course raises the next obvious question, *When* is there such a "constant and fixed relationship"? Or: What is it for there to be such a "constant and fixed relationship"? Well, given (1) that "can be said of" can naturally and not implausibly be understood in the sense of "is true of," (2) that the "relationship" involved here is clearly a relation(ship) of deducibility (of the properties of the whole universe from those of the substance "expressing" it), and (3) that in the present case deducibility is deducibility via complete concepts, the when-question can easily be answered as follows: When what can be said (i.e., is true) of the whole universe is deducible from what can be said (i.e., is true) of a given individual substance *s* via the complete concept exemplified by *s*. An equally easy answer will do for the what-question (I leave to the reader the far easier task of finding it).

Now, if expression is a matter of a "constant and fixed relationship" between two "entities"—namely, each individual substance and the whole universe; if "constant and fixed relationship," in turn, is a matter of deducibility; and, finally, if deducibility is a matter of the completeness of concepts; then that each individual substance exemplifies a complete concept is not only what enables it to express the entire universe. It is what *accounts for*, and entails, its expressing the *whole* (which, unless compossibility is brought into the picture, need not mean: the same) universe.

This is not the whole story, however. For we want to be able to say, not just that each individual substance expresses the *whole* universe: but also, and more significantly, that each individual substance expresses the *same* universe. How are we going to be able to say the latter? Well, this much at least we know: in order for a given individual substance *s* to express the whole—and

not, mind you: the same—universe, all that is needed is that the concept exemplified by *s* be *complete*. What has to be added? Easy: compossibility—the concepts exemplified by actual individual substances must be complete *and* mutually compossible. Thus to say that all individual substances express the *same* universe is to say that the concepts exemplified by them are complete *and* mutually compossible: completeness guarantees deducibility; compossibility, in turn, guarantees sameness of universe (see §0.2 above). What accounts for *expression* (of the *same* universe by all actual individual substances), then, is the completeness and mutual compossibility of exemplified individual concepts. And what makes possible the step from “expression of the same” to “expression of the whole” is the fact that compossibility implies—at least given the way in which I have characterized it on p. 73 above—completeness, so that an individual substance which expresses the same universe expressed by all other substances will automatically express the *whole* universe.

(If this is so, and, further, if the “extrinsic denominations” of a given individual substance belong to it, as Leibniz says, “only by virtue of the general connexion of things and of the fact that it is an expression of the entire universe after its own manner” [CA, 63], then that a given individual substance has “extrinsic denominations” is a result of the fact that it exemplifies a complete concept—together with the fact that the latter is compossible with all other exemplified complete concepts.¹⁵ But this is just another way of saying that the “extrinsic denominations” of a given individual substance *s* have their “basis” in—are ultimately “reducible” to—the properties making up the complete concept of *s*. Further textual evidence for this claim is provided by the following passage—provided “express” is understood in the way I have suggested above: “things which differ in position must express their position, that is, their surroundings, and hence are not to be distinguished merely by their location or by a solely extrinsic denomination . . .” [L, 529].)

But let me make a couple of more points on the notion of expression. Since, as we have just seen, the latter is most plausibly explicated by employing the notions of completeness (of concepts) and compossibility, it is not *that* implausible, *if* we take it as primary, to suggest that individual substances are *connected* by virtue of the fact that they all express the same universe. In a sense, therefore, connection is a special—indeed, a *very* special—kind of expression: no connection, we might say, without expression—especially if we bear in mind (a) that connection is the analogue in actuality of compossibility in the realm of possibility (cf. §0.2 above), and (b) that each statement of connection is an attribution of a property to a given individual substance, and hence requires (given Leibniz’s definition of truth) that the concept exemplified by that substance be *complete*.

Now for the second point. In §0.2 above I claimed that what accounts for (the principle of) mirroring is that the concepts exemplified by individual

substances are complete and mutually compossible. In the present section I have said pretty much the same thing of the notion of expression (of the same universe by all individual substances). What distinguishes, then, *mirroring* from *expressing*? Very simply, this: what fills the blanks in "— mirrors —" are "each complete concept" and "all the other complete concepts in the same (possible) world," respectively; whereas what fills the blanks in "— expresses —" are "each individual substance" and "the whole/same universe," respectively. In a word: we may look upon expression as the counterpart for an actualized world to mirroring for a "merely" possible world. (If, on the other hand, we apply the mirroring principle to actual individual substances, rather than to the concepts they exemplify, mirroring may be conceived of as a species of expression, and the distinction between them will accordingly virtually disappear. See, e.g., C, 15.)

0.4. (Universal) Harmony.

So far I have been employing "expresses" almost exclusively in the context "each individual substance expresses the whole universe (from its own point of view)." What if we were to replace "whole" by "same" in that context? We would get Leibniz's celebrated doctrine of (universal) Harmony—or something pretty much like it. Consider, for instance, the following passage:

The hypothesis of concomitance or harmony between substances *follows from* what I have said about each individual substance embracing for ever all the accidents that will occur to it and being an expression after its own manner of the whole universe. (CA, 86—italics mine; see also CA, 64)

But this is not *exactly* what we were after. For the fact that each individual substance is an expression after its own manner of the *whole* universe does not imply—nor does it guarantee—that it is an expression after its own manner of the *same* universe. The (whole) universe expressed by each substance may well be a portion of a larger region—a polyverse, a "grand" universe—containing as many mutually disjoint universes as there are individual substances,¹⁶ in which case there would be no way of getting from "expression of the whole" to "expression of the same." In order to be able to get from the former to the latter, we have to bring into the picture the notion of compossibility: compossibility and the view that each individual substance expresses the whole universe after its own manner jointly imply the view that each individual substance expresses the *same* universe (polyverse?).

Clearly, then, the spirit—if not literally the letter—of what we were after is contained in the following passage: "all simple substances will always have a harmony among themselves *because* they always represent [i.e., express] the *same* universe" (L, 711-712—italics mine; see also L, 651, and GP VII, 311).

Given the way in which I have explained the notion of expression in §0.3 above, (universal) Harmony can be regarded as a natural consequence of the completeness and mutual compossibility of the concepts exemplified by

actual individual substances. And even if it turned out that it is possible to give an analysis of the notion of expression in which no reference is made to the notion of compossibility (see for instance §1 below), the latter would be needed anyway. For, as we have just seen, compossibility is precisely what enables Leibniz to take the quite crucial step from the claim that each individual substance expresses the *whole* universe to the claim that each individual substance expresses the *same* universe. That is, unless our own universe (world) were a set of mutually *compossible* exemplified complete concepts, there would be no way for Leibniz to take the step from the former to the latter claim:¹⁷ as I have pointed out above, the universe expressed by each individual substance might well be a region of a larger universe containing as many mutually disjoint universes, each of them belonging (we may suppose) to a different spatio-temporal dimension, as there are individual substances. Compossibility is what rules out this possibility. And (universal) Harmony, we can now safely repeat, is essentially a question of each individual substance's expressing the *same* universe from its own point of view.

But things are not just *that* simple and easy. The following passages, for instance, flatly contradict not only the claim I have just made, but also (and more dramatically) both of the passages I have quoted in the past few paragraphs:

Yet he [Bayle] was unable to set forth any reason why this universal Harmony, which *results in every substance expressing all the others by means of the relations it has with them*, should be impossible. (*L*, 648—italics mine)

... this expression occurs everywhere, *because every substance is in harmony with every other*. (*CA*, 144—italics mine; see also *CA*, 87)

The situation does not look very promising.¹⁸ On the one hand, Leibniz definitely maintains that the fact that each individual substance expresses the same universe from its own point of view follows from the fact that (universal) Harmony holds: this we have just seen. On the other hand, he *also* definitely maintains that the fact that (universal) Harmony holds follows from the fact that each individual substance expresses the same universe from its own point of view: this we have seen a while ago. He may well have wanted to hold *both* views at the *same* time: that is, he may have been consciously responsible for what I have called the Leibnizian "circle"—and this looks a little more promising.

In fact, it is (almost) possible to hold both views at the same time, still saving the "circle," but in a slightly less overtly circular way, as follows: to claim that (universal) Harmony holds is to claim that each individual substance expresses the *same* universe from its own point of view—and conversely: to claim that each individual substance expresses the *same* universe from its own point of view is to claim that (universal) Harmony holds. (This becomes somehow obvious, in some non-standard sense of "obvious,"¹⁹ as soon as we

distinguish—as I have done a few paragraphs back—between the assertion that each individual substance expresses the *whole* universe from its own point of view, and the assertion that each individual substance expresses the *same* universe from its own point of view. Clearly the latter implies the former: but not conversely, as I have shown above.)

Do we have an independent way of explaining the notion of "the *same* universe," so as to make the "circle" even less overtly circular? Perhaps the following explanation will do—for our present purposes, anyway. Given that a possible world (universe) is a set of mutually compossible complete concepts, we might say that two individual substances s_i and s_j express (or, not to beg the question, belong to) the *same universe* just in case the concepts exemplified by them are mutually compossible. And this amounts to saying, in turn, that, for any property ϕ , if ϕ is a member of the concept exemplified by s_i (respectively, s_j) then it is possible to deduce from the concept exemplified by s_j (respectively, s_i) that ϕ is a member of the concept exemplified by s_i (respectively, s_j). (Notice that the completeness of individual concepts would *not* suffice to characterize adequately the notion of "the same universe." For that two concepts c_i and c_j are complete is clearly no guarantee that they are mutually compossible—i.e., that from c_i one can infer all the properties belonging to c_j , and conversely—and hence that, assuming c_i and c_j do indeed belong to a possible world, they do indeed belong to the *same* possible world.)

The view that (universal) Harmony holds and the view that each individual substance expresses the same universe from its own point of view, then, can be explained in terms of the fact that the set of concepts exemplified by individual substances is a set of mutually compossible complete concepts. The very same fact makes it possible for (universal) Harmony to hold and for each individual substance to express the same universe. If this is so, both views can plausibly be regarded as natural offshoots of the mirroring principle for complete concepts: alternatively, that (universal) Harmony holds, and that each individual substance expresses the same universe, can plausibly be regarded as the analogue in actuality of the mirroring principle in the realm of possibility (i.e., as applied to complete individual concepts rather than to individual substances).

In a rather puzzling and curious passage,²⁰ however, Leibniz puts forth a view that is somewhat unlike any of the views I have ascribed to him in the present section. He maintains that the claim that the nature of an individual (or "simple," as he puts it) substance is such that its "following state" is a consequence of the preceding one and the claim that the universe expressed (or "represented," as he puts it) by each individual substance is the same are intimately associated (if not interchangeable). Here is the passage:

The nature of every simple substance, soul, or true monad being such that its following state is a consequence of the preceding one, here now is *the cause of* harmony found out. For God needs only to make a simple substance become once and from the beginning a

representation of the universe according to its point of view, since from thence alone it follows that it will be so perpetually and that all simple substances will always have a harmony among themselves *because* they always represent the same universe. (*L*, 711-712 —italics mine)

The italicized material in the passage I have just quoted shows—conclusively, I should venture to say—that Leibniz did indeed regard as intimately associated the two claims I have described a couple of paragraphs back. The resulting view, as far as (universal) Harmony is concerned, is more or less the following: the nature of each individual substance's being such that "its following state is a consequence of the preceding one," (universal) Harmony holds. Alternatively, and equivalently (?): all individual substances' representing (i.e., expressing) the *same* universe, (universal) Harmony holds.

Assuming that the interpretation of the passage under present analysis is correct, the question now arises, Why should Leibniz regard as intimately associated the claim that the nature of each individual substance is such that "its following state is a consequence of the preceding one" and the claim that all individual substances express the *same* universe? The explanation²¹ is not hard to find: he just took one of the two claims to provide some sort of "explication" for the other.

Contrary to what might be expected,²² I take the "explicating" claim to be the one dealing with the notion of expression (of the same universe by all individual substances); *not* the one dealing with the nature of "simple" substances. (This I regard as obvious in view of the "For" in the passage under present analysis.)

What I have in mind is something like the following: That the present state of each individual substance is a consequence of the preceding one is a consequence of—is to be understood in terms of—the fact that the universe expressed by each individual substance is the same. For clearly, if to say the latter is to say, in particular (cf. §0.3 above), that each individual substance exemplifies a complete concept from which all of its properties, in particular, are derivable (and derivable precisely in the *order* in which it comes to possess them), then, in particular, the present state of each individual substance can be inferred from the preceding one—via the complete concept exemplified by the substance in question. (This of course entails understanding "is a consequence of" in terms of "can be inferred/derived from," which entails, in turn, that for the present state of a given substance to be a consequence of the preceding one is for the former to be *expressed* by the latter.)

(*En passant*, we might also notice that a minimal condition for its being the case that the universe expressed by all individual substances is the same is that the present state of each individual substance be a consequence of the preceding one: this much at least appears to be implicit in the double-edged passage quoted in note 22 below, and to follow explicitly from what I have said in the previous paragraph. For if the present state of a given substance is not a

consequence of—that is, is not *expressed* by—the preceding one, then clearly the notion of “*expressing* the same universe” could not meaningfully be applied to it. This is one more instance, perhaps an unimportant one, of the Leibnizian “circle.”)

A couple of paragraphs back I claimed, and showed, that a tight connection obtains between the fact that each individual substance exemplifies a complete concept, and the fact that the present state of each individual substance is a consequence of its preceding state—would Leibniz have accepted such a view? I should be inclined to claim that he would, especially if the following—admittedly *not* conclusive—passages are taken into account:

each of these [i.e., indivisible] substances contains in its nature the laws by which the series of its operations continues, and all that has happened and will happen to it. (*CA*, 170)

... in my opinion it is in nature of created substance to change continually following a certain order which leads it ... through all the states which it encounters, in such a way that he who sees all things sees all its past and future states in its present. And this law of order, which constitutes the individuality of each particular substance, is in exact agreement with what occurs to every other substance and throughout the whole universe. (*L*, 493)

It matters not that there is no explicit reference to complete concepts in the passages I have just quoted. For clearly, both what Leibniz calls the “law by which the series of its [i.e., a given individual substance’s] operations continues” and what he calls the “law of order” not only underlie the view that the present state of a given individual substance is a consequence of the preceding one: they are also closely connected, as we have seen in §0.1 above, with the notion of a complete concept. Thus, for instance, the former is said by Leibniz to be contained in each individual substance’s “nature,” i.e., I take it, complete concept—or the counterpart, *in* each individual substance, to the complete concept exemplified by it. The “law of order,” in turn, can plausibly be regarded as some sort of analogue, *in* each individual substance (see, e.g., *L*, 500), of the complete concept exemplified by it. (Somewhat less plausibly, it might also be taken to be the complete concept itself: this becomes slightly more plausible if we understand the notion of “agreement” in terms of that of compossibility.)

Complete concepts, then, do after all turn out to be quite relevant to the view that the present state of each individual substance is a consequence of the preceding one. We are perfectly justified, therefore, in regarding the claim that the universe expressed by each individual substance is the same as an “explication” of the claim that the present state of each individual substance is a consequence of the preceding one. Can we also get the former from the latter claim, thereby “closing” the circle? Provided (1) we bring into the picture (the notion of) compossibility and (2) we regard the totality of “states” of a given individual substance as identical with the totality of its properties, the answer is affirmative: we certainly can—here is how.

We have seen earlier that the completeness of the concepts exemplified by a given substance *s* is what makes it possible for the present state of *s* to be a consequence of the preceding state of *s*: that is, there is a (unique) way of inferring the present state of *s* from its preceding state. If to completeness we now add compossibility, we will be in a position to infer from the preceding state of *s* not only the present state of *s*, but *also* the present state of all other existing individual substances. (This is a pretty obvious consequence of the way in which I have characterized the notion of compossibility in §0.2 above.) In a word: at each time in its history, *s* is going to be an expression of the *same* universe that is expressed by all other existing individual substances.

If this is so, (universal) Harmony can *also* be regarded as a consequence of the fact that the present state of each individual substance follows from the preceding state—together with the fact that the concept exemplified by a given individual substance is compossible (in the sense of “compossible” explained in §0.2 above) with the concepts exemplified by all other individual substances. We can go *both* ways, however (see, e.g., *CA*, 147): that is to say, from the fact that Harmony (in some intuitive sense of “Harmony”) holds we can infer the two facts just mentioned—especially if it is indeed the case that for (universal) Harmony to hold is for each individual substance to express the same universe, and conversely.

I think it is about time to turn to a *direct* discussion and analysis of the Leibnizian “circle.” Before doing that, however, I should like to say a few words on a distinction which will turn out to be of rather crucial importance to our subsequent discussion and analysis, and which I have only too briefly alluded to in §0.2 above.

0.5. The two “levels.”

The theory of complete concepts and the notion of a complete concept; the notion of compossibility; the mirroring principle; the notion of connection; the notion of expression; and, finally, the doctrine of (universal) Harmony: it would be quite wrong to take all of these theories/ notions/ principles to be, as it were, of the same “type” (the same metaphysical “type,” I mean), or to belong to the same (metaphysical) “level.” There are two fundamental “levels” (or “types”) to be distinguished here: the “level” of possibility (=conceive of our own world as possible, i.e., as a set *s* of mutually compossible complete concepts); and the “level” of actuality (=conceive of our own world as actual, i.e., as a set of individual substances exemplifying the concepts belonging to *s*).

Given the theory of complete concepts, what takes place at the “level” of actuality could in principle be “read off” from the “level” of possibility: just look at the appropriate (set of mutually compossible) complete concepts, and you will be able to infer not only the entire history of our own world, but also a number of quite crucial properties of the latter—for instance, that (universal) Harmony holds in it; that all things in it are connected; that it is expressed by

each individual substance inhabiting it (see however §0.5-0 below); and so on; and so forth. For obvious reasons (one of them being that a one-to-one correspondence obtains between the complete concepts belonging to the "level" of possibility and the individuals exemplifying them), there is some sort of trade-off between the two "levels": but one must be careful—it is a very delicate balance.

For although what takes place at, and is true of, the "level" of actuality, is indeed *determined* by what is true of the "level" of possibility, in the sense that the former necessarily²³ "mirrors" (exemplifies) the latter, what we may take to be true of the "level" of actuality—say, that the universe expressed by each individual substance is the same—*may* have a bearing on what we may take to be true of the "level" of possibility—say, that the concepts belonging to it are complete and mutually compossible (compossible worldwide, that is). That is, the picture we have of the "level" of actuality is bound to influence, to some extent at least, the picture we have of the "level" of possibility. (An analogous situation obtains in the philosophy of mathematics:

If we have decided upon a model of the meanings of mathematical statements according to which we have to repudiate a notion of truth considered as determinately attaching, or failing to attach, to such statements independently of whether we can now, or ever will be able to, prove or disprove them, then we shall be unable to use the picture of mathematical reality as external to us and waiting to be discovered. Instead, we shall inevitably adopt the picture of that reality as being the product of our thought, or, at least, as coming into existence only as it is thought. Conversely, if we admit a notion of truth as attaching objectively to our mathematical statements independently of our knowledge, then, likewise, the picture of mathematical reality as existing, like the galaxies, independently of our observation of it will force itself on us in an equally irresistible manner. But, when we approach the matter in this way, there is no puzzle over the interpretation of these metaphors: psychologically inescapable as they may be, their non-metaphorical content will consist entirely in the two contrasting models of the meanings of mathematical statements, and the issue between them will become simply the issue as to which of these two models is correct.²⁴

Dummett's "picture of mathematical reality" corresponds more or less to what I have called above the picture of the "level" of possibility: whereas his "model[s] of the meanings of mathematical statements" corresponds more or less to what I have called above the picture of the "level" of actuality. The parallel between the two cases is indeed rather striking: the other side of the coin, for which the parallel does not hold any more, will be described and discussed in §1 below.)

So much for the distinction between the two "levels." Let me now raise the question: What belongs to which of the two "levels"? Easy: whereas the notion of compossibility, as well as that of a complete concept, definitely belong to the "level" of possibility, the *theory* of complete concepts itself may plausibly be regarded as the natural *trait d'union* between the two "levels"—which

makes it somewhat neutral as far as membership in either of the two "levels" is concerned. Finally, the mirroring principle, as applied to complete concepts, clearly belongs to the "level" of possibility.

The remaining notions (namely, expression and connection) and the doctrine of (universal) Harmony all belong to the "level" of actuality: this should almost go without saying. What should *not* go without saying, however, is the fact that, *if* indeed what is true of the "level" of possibility determines what is true of the "level" of actuality, then, in particular, that Harmony holds, that the universe expressed by each individual substance is the same, that all things are connected, etc., should be capable of being explained—or accounted for—in terms of what is true of the "level" of possibility. More specifically, it ought to be possible to understand (as well as explain) the notions/doctrines/theories belonging to the latter without reference to the notions/doctrines/theories belonging to the "level" of actuality. Let us see whether or not this can be done.

1. The "circle" proper.

So far, it must be admitted, not much of a "circle": just the *contours*, the main outlines, of a possible "circle." Here is how to make it actual—or plausible, as I should rather say. In the previous sections we have almost been able to "reduce" the mirroring principle, the doctrine of (universal) Harmony, the notion of expression, and that of connection to the notions of a complete concept and compossibility. In particular, the view that each individual substance *expresses* the same universe was explained, and understood, in terms of the view that the set of concepts exemplified by individual substances is a set of mutually compossible complete concepts. Things, however, as we shall presently see, are not at all as simple as that: *at least* one variation must be allowed for. Thus consider the following two quite intriguing passages:

You seem to have rightly grasped my doctrine of how every body whatever expresses all other things, and how every soul or entelechy whatever expresses its own body and through it all other things. But when you have uncovered the full force of this doctrine, you will find that I have said nothing else which does not follow from it. (*L*, 531)

... once it has been established that each monad represents [i.e., expresses] the universe, what remains (*le reste*) are nothing but consequences. (*GP* III, 465)

If we take the passages I have just quoted at face value, and if, further, we explain (and understand) the notion of expression (of the same universe by all individual substances) in terms of the notions of completeness and compossibility (of concepts), we find ourselves right in the midst of the Leibnizian "circle"—the "circle" proper, I mean. For it turns out that we have now to explain (and understand) the notions of completeness and compossibility (of concepts), in particular, in terms of the notion of expression (of the same universe by all individual substances).

Whether or not the two passages quoted above can be explained away,²⁵ it is indeed the case that it is possible to go *both* ways—from completeness and compossibility to expression, and from expression (regarded now as an ultimate metaphysical fact about the world)²⁶ to completeness and compossibility. This is the general picture: and here are its main features.

The notion of expression (of the same universe by all individual substances) is the counterpart in actuality to the notions of completeness and compossibility in the realm of possibility, and conversely: there is no reason to regard either of them—whether expression or compossibility and completeness—as metaphysically dependent upon the other (cf. for instance *L*, 524-525). That is: the view that each individual substance exemplifies a complete concept which is compossible with the concepts exemplified by all other individual substances makes sense, and can be made sense of, only insofar as it makes sense to claim that the universe *expressed* by each individual substance is the *same*—especially if the notion of a “constant and fixed relationship” involved in Leibniz’s definition of “expression” is understood in terms of deducibility (and Leibniz’s theory of truth is eventually brought into the picture). That is: if it is indeed the case that the concepts exemplified by individual substances are complete and mutually compossible, then each individual substance is bound to express the same universe (and Harmony holds); if, on the other hand, each individual substance expresses the same universe (and Harmony holds), then the concepts exemplified by individual substances are bound to be complete and mutually compossible.

(In a desperate effort to break out of the “circle,” we might claim, taking a hint from Dummett, that, in the order of recognition, the view that each individual substance expresses the same universe is primary, whereas in the order of explanation the view that the concepts exemplified by individual substances are complete and mutually compossible, is itself primary. This, however, would only make the “circle” proper *slightly* less conspicuous: it would not get rid of it, since obviously the two orders can be reversed—what is primary in the order of recognition may well be regarded as primary in the order of explanation, and what is primary in the order of explanation may well be regarded as primary in the order of recognition.)

As Leibniz might well have said, there is a perfect “harmony” between the two “levels”: just as we explain why each individual substance expresses the same universe by saying that each individual substance exemplifies a complete concept which is *compossible* with the concepts exemplified by all other individual substances; so we explain why actual individual substances exemplify mutually compossible complete concepts by saying that all of them express the same universe.²⁷ In other words: the completeness and mutual compossibility of the concepts exemplified by individual substances is accounted for in terms of the fact that all individual substances express the same universe; and conversely, the fact that all actual individual substances

express the same universe is accounted for in terms of the completeness and mutual compossibility of the concepts exemplified by the substances in question.

This, I should like to suggest, is the most important and interesting aspect of the Leibnizian "circle": actually, the "circle" proper. But it is not the whole story. For we might want to step out of the "circle" and see whether or not it is possible to find some sort of "neutral" motivation for its components. Here is a plausible suggestion: what underlies the view that all individual substances express the same universe, and the view that the concepts they exemplify are complete, is Leibniz's definition of truth²⁸ (as containment of the concept of the predicate in that of the subject), and hence, indirectly, the principle of sufficient reason. (As I have shown elsewhere,²⁹ an account of truth, not necessarily the only one, which appears to be consistent with—and in a sense to "vindicate"—the principle of sufficient reason is an account in which truth is characterized in terms of containment or deducibility. And conversely, the main, if not the only, reason for holding the principle in question is Leibniz's very characterization of truth in terms of containment or deducibility.)

Lest it be thought that the above suggestion enables us to get rid of the "circle" proper, the following two crucial facts ought to be taken into account. First, there is no way of inferring (the notion of) compossibility from Leibniz's definition of truth taken by itself. And second, the latter, taken by itself, does not entail the view that all individual substances express the same universe: it must be supplemented with the notion of connection (whose task is to provide us with the totality of truths about the universe expressed by a given substance, as Leibniz himself implicitly acknowledges in *DM*, 13), and with that of "the *same* universe," whose explication (as we have seen in §0.4 above) involves the notion of compossibility.

Even though Leibniz's definition of truth does not provide a satisfactorily "neutral" motivation for each of the members of the "circle," however, it goes some way toward explaining why we have *that* kind of "circle" rather than an altogether different kind (this applies to the circular design of §0.5-0 below as well). For the main component of that definition is the notion of deducibility (or containment) of the concept of the predicate from (in) that of the subject: and that notion is the common denominator, we might say, not only of the two views I have just been talking about, but also of the members of the "family" (connection, compossibility, mirroring principle, and universal Harmony). That the "family"—inclusive of the "circle" proper—is structured in the way it is structured and not in a different way, is essentially due to Leibniz's definition of truth: not, mind you, *that* there is a "family" which turns upon itself, but that there is a "family" of *that* sort—indeed, this appears to be a fairly straightforward consequence of the fact that truth is characterized by Leibniz in terms of deducibility (or containment). And here we have—*perhaps*—the sort of "neutral" motivation we were after.

So much for the "circle" proper. I should now like to "turn" the "circle" into a grand circular design: to show, in other words, that most, if not all, of the notions/doctrines, etc., I have been talking about so far are tightly interconnected—that each of them sends you around to (some if not all of) the remaining ones; that none of them has a right to be regarded as metaphysically primary (except *perhaps* for the notion of a complete concept); that what is *really* metaphysically primary is the circular design itself.

0.5-0. The "family."

The same, or roughly the same, counterpoint that obtains between the view that the concepts exemplified by individual substances are complete and mutually compossible, and the view that each individual substance expresses the same universe, obtains between the mirroring principle and Leibniz's view that all things (hence, in particular, all individual substances) are *connected*. We can start from the mirroring principle (regarded as a principle to the effect that from the properties included in a given complete concept *c* it is possible to deduce all the properties included in the complete concepts which are *compossible* with *c*), and then regard the view that all things are connected as some sort of analogue, *in the actual world* (=at the "level" of actuality), of the mirroring principle itself. Or else, we can start from the view that all things are connected and argue from it to the mirroring principle: since all things (in particular, all individual substances) are connected, the (complete) concepts exemplified by them must allow for something equivalent (if not identical) to the principle in question. We can go *both* ways: it is because the mirroring principle holds that all things are connected; it is because all things are connected that the mirroring principle *must* hold.³⁰

Next, if the view that all things are connected requires for its truth something like the mirroring principle for complete concepts, it will also require that the concepts exemplified by individual substances be mutually *compossible*. For, it will be recalled (cf. §0.2 above), compossibility turns out to be a crucial factor in making mirroring possible. That is, one of the reasons for employing the notion of compossibility is the role it plays in the "proof" of the mirroring principle itself. This being so, the view that all things are connected sends you around, via the mirroring principle, to compossibility—and conversely, again via the mirroring principle (specifically, via the claim that, since all things are connected, the mirroring principle must hold).

The next obvious step is to get rid of the mirroring principle itself, regarded purely as a *trait d'union* between the notion of compossibility and that of connection, and see how the former fares *vis-à-vis* the latter. Once more, it is possible to go both ways. We can regard the view that all things are connected as metaphysically ultimate, and argue from it to the view that the concepts exemplified by individual substances must be *at least* mutually compossible. Or else we can regard as metaphysically ultimate the view that the concepts

exemplified by individual substances are (at least) mutually compossible, and argue from it to the view that all things are connected.

Next, as we have already seen in §0.3 above: there can be no connections between individual substances, unless the *universe* expressed by each individual substance is the *same*. But the notion of "the same universe" (a) can be made sense of in terms of that of compossibility (cf. §0.4 above) and (b) is intimately connected, via the notion of compossibility, with the mirroring principle, which, in turn, is itself intimately connected with the notion of compossibility. And again we are sent around, in a rather devious way, to the notion of connection.³¹

Next, the notion of connection appears to be responsible, at least in part and somewhat indirectly, for the doctrine of (universal) Harmony: here is how. First, for (universal) Harmony to hold, and for the universe expressed by each individual substance to be the same, is, it will be recalled, one and the same thing. Next, since connection can plausibly be regarded (as I have suggested in §0.3 above) as a *very* special sort of expression, the notion of connection comes to be explained and accounted for in terms of that of expression. That is, it must be the case that each substance expresses the same universe (and hence that Harmony holds) in order for its being the case that all things are *connected*: there would be no connections between things if the situation I have described on p. 81 were to obtain. In this sense it makes sense, I take it, to claim that the notion of connection is somehow responsible for the doctrine of (universal) Harmony.

Now, however, consider the following passages:

each individual substance is an expression of the whole universe, . . . *through* the connexion that exists between all things. . . . (CA, 57—italics mine; see also CA, 44)

. . . [the soul] expresses the whole universe in a certain sense, and in particular according to the connexion between other bodies and its own, for it cannot equally well express everything. (CA, 113)

. . . since everything is connected because of the plenitude of the world, . . . *it follows* that each monad . . . represents [i.e., expresses] the universe according to its point of view. (L, 637—italics mine; see also C, 15)

This completely reverses the picture. The situation we seem to be facing now is more or less the following: connection is not at all a special (or even a *very* special) kind of expression; the latter is *not* to be used in order to explain what makes the former possible. Rather, sense must be made of the fact that individual substances express the same universe, and hence that (universal) Harmony holds, by saying that all of them are connected—which implies, in view of §1 above, that Leibniz's requirement that the concepts exemplified by actual individual substances be complete, is a consequence of his view that all things are connected. Once more, the notion of connection turns out to be "metaphysically ultimate" (at the "level" of actuality, that is: "Now this

mutual connection or accommodation of all created things to each other and of each to all the rest causes each simple substance to have relations which express all the others and consequently to be a perpetual living mirror of the universe" [L, 648; see also *GP* VII, 316-317]). Once more, however, we can go *both* ways: take the notion of expression as our starting point (as "metaphysically ultimate," that is, at the "level" of actuality), and proceed to deduce from it that of connection; or else, turning things upside down, take the notion of connection as our starting point, and proceed to deduce from it that of expression as well as that of completeness—plus the doctrine of (universal) Harmony.

Either way, the notion of compossibility and the mirroring principle will sooner or later enter the picture as well (very likely via the theory of complete concepts), and play in it different roles, depending on whether expression or connection is taken as our starting point. And conversely: given either the notion of compossibility (together with that of completeness) or the mirroring principle (as applied to complete concepts, rather than to the individual substances exemplifying them), the view that all things are connected and the view that the universe expressed by each individual substance is the same (and hence the doctrine of universal Harmony) will sooner or later enter the picture as well, and play in it different roles depending on whether the notion of compossibility or the mirroring principle is taken as one's starting point (as "metaphysically ultimate," that is, at the "level" of possibility).

At this point a number of variations on the same theme are possible. For instance, from the views that all things are connected and that each individual substance exemplifies a complete concept, we can derive the view that each individual substance expresses the same universe. Or else, from the views that each individual substance expresses the same, and hence the whole, universe, and that the concept exemplified by it is compossible with the concepts exemplified by the remaining substances, we can derive the view that the concepts in question are complete. Or else, from the view that each individual substance exemplifies a complete concept and from the mirroring principle (as applied to complete concepts), we can derive the view that all things are connected. Or else, from the views that all things are connected and that each individual substance expresses the whole universe, we can derive the notion of compossibility and the view that each individual substance exemplifies a complete concept. Or else . . .

So a tight, intimate connection obtains not only between the various notions, doctrines, principles, etc., I have been discussing so far, but also between the "level" of actuality and that of possibility: these are the main outlines of the grand circular design I have alluded to at the end of the previous section. There is, however, a "neutral" standpoint from which it is possible to look at the design without being trapped into it: Leibniz's definition of truth³² and the principle of sufficient reason—which, as I have pointed out above, are

in turn intimately connected, and provide the ultimate foundation for the design (together, I should perhaps add, with Leibniz's views on what it is for monads to perceive an "independently" existing universe).

Perhaps a way may be found of making use of that definition and of that principle so as to reconstruct a design which is not circular. *Perhaps*, on the other hand, there is no real *dénouement* to the story. *Perhaps* it is just wrong to look for something like a "deductive" system in Leibniz's writings. *Perhaps* what I have said so far is one more proof—if need be—that life is indeed a floating opera. (But this is the topic for a paper of an *altogether* different kind.)

NOTES

The following abbreviations are used in the text: *GP* for Gerhardt, ed., *Die philosophischen Schriften von G. W. Leibniz*, I-VII (Berlin, 1875-1890); *C* for Couturat, ed., *Opuscules et fragments inédits de Leibniz* (Paris, 1903); *CA* for *Correspondence with Arnauld*, trans. H. T. Mason (Manchester, 1967); *DM* for Leibniz, *Discourse on Metaphysics*, trans. Lucas and Grint (Manchester, 1967); *L* for Loemker, ed., *Leibniz: Philosophical Papers and Letters* (Dordrecht, 1969). I wish to thank Adam Morton for telling me about *Adam's Original & Unparalleled Floating Opera*, which eventually led to the "circle"; Margaret Wilson, for helpful comments on an earlier draft; and Jim Cappio for checking my English and French. A shortened version of this paper was read at Swarthmore College, February 1977.

1. See Fourth Set of Objections, in Descartes, *Philosophical Works*, II, trans. Haldane and Ross (Cambridge, 1968), p. 92.

2. M. Dummett, *Frege: Philosophy of Language* (London, 1973), pp. 4-5.

3. As we shall see in §0.2 below, a possible world in Leibniz's sense is a set of mutually compossible complete concepts (cf. also *L*, 662).

4. In Leibniz's very words, "Every individual substance includes the whole universe in its perfect [i.e., complete] concept" (*L*, 269).

5. See my "Reference, Essentialism and Modality in Leibniz's Metaphysics," *Studia Leibnitiana* 5 (1973): 74-101; and my "Leibniz and the Doctrine of Inter-World Identity," *Studia Leibnitiana* 7 (1975): 21-57.

6. For the distinction between individual and generic essential properties, cf. T. Parsons, "Essentialism and Quantified Modal Logic," reprinted in Linsky, ed., *Reference and Modality* (Oxford, 1971), pp. 73-74.

7. That Leibniz took relations, and in particular relational properties, to be reducible to nonrelational properties (i.e., to some, if not to all, of the properties making up complete individual concepts) seems to me pretty clear in view of what he says in *L*, 268, 269, 526-527. The passages which are usually cited to support the opposite view (e.g., *CA*, 63-64) can easily be explained away. The correct interpretation, however, probably lies in the middle: Leibniz regarded relations (as well as relational properties) as indispensable at the "level" of actuality—and as dispensable, or reducible to nonrelational properties, at the "level" of possibility. (For the notion of "level" of actuality, and for that of "level" of possibility, see p. 76 below and §0.5 below.)

8. "Leibniz on Possible Worlds," reprinted in H. Frankfurt, ed., *Leibniz: A Collection of Critical Essays* (New York, 1972), p. 341.

9. Pretty much the same characterization of the notion of compossibility has been proposed by Robert Sleigh in an unpublished paper, "The Leibniz-Arnold Correspondence" (1973).

10. Which is equivalent to saying that from a given (exemplified) complete concept it is possible to deduce all the properties of the universe (world) wherein it is exemplified.

11. A different and equally justified interpretation is possible, however (cf. §0.4 below): if we take the "level" of actuality, and hence the view that all things are connected, as primary, then the "level" of possibility and hence, in particular, the individual concepts belonging to it, will have to be consistent with the fact that each individual substance is connected with all other individual substances—that is, they (the concepts, I mean) will have to be complete, and, in particular, mutually compossible. We get another instance of the Leibnizian "circle" if we couple this interpretation with the one I propose in the main text.

12. Although, as we shall see later, it makes sense to claim precisely the opposite: that it is because any two individual substances are connected that the concepts exemplified by them are compossible.

13. That is, the "concept of substance or complete entity" is the concept of something exemplifying a complete concept.

14. The best and most convincing textual evidence for this interpretation comes from *CA*, 63-64.

15. Recall that in §0.2 above the notion of connection was explained in terms of that of compossibility: the "circle" will be closed in §0.5-0 below.

16. A situation not unlike the one I imagine in the main text has been described in some detail by M. Furth in "Monadology," reprinted in Frankfurt, ed., *Leibniz: A Collection of Critical Essays*, pp. 115-116. The situation I have in mind is just an extension—a perverse one, to be sure—of Leibniz's claim that "every substance is like a whole world and like a mirror of . . . all the universe" (*DM*, 14) (see also *DM*, 27, "every . . . substance is like a little world which expresses the great world . . ."). But it is also a perfectly harmless, far from perverse adaptation of Leibniz's remark that "God could give to each substance its own phenomena independent of those of others, but in this way he would have made as many worlds without connection, so to speak, as there are substances . . ." (*L*, 493).

17. See also my "A Harmony of One's Own and Universal Harmony in Leibniz's Paris Writings," forthcoming in the Proceedings of the Symposium "Leibniz à Paris," held in November 1976, at Chantilly, Paris, France.

18. *En passant*, I should perhaps point out that this neat and direct way of putting the matter is due to David A. Johnson.

19. And here one is reminded of Kreisel's captivating dictum, "It is not obvious what is obvious"—for obvious reasons.

20. Part of which I have already quoted and discussed on p. 81 above.

21. See also my "A Harmony of One's Own and Universal Harmony in Leibniz's Paris Writings," where I provide a somewhat different explanation.

22. At least in view of the following double-edged passage, which I have discussed in §0.3 above: "By the concept of substance . . . , which implies that its present state is always a natural consequence of its preceding state, it follows that the nature of each individual substance is . . . to express the universe" (*CA*, 145-146).

23. In this connection, see my "Leibniz and the Doctrine of Inter-World Identity."

24. M. Dummett, "The Philosophical Basis of Intuitionistic Logic," in H. E. Rose and J. C. Shepherdson, eds., *Proceedings of the Logic Colloquium, Bristol, 1973* (New York and Amsterdam, 1975), p. 21.

25. For instance, we might try to get rid of the second of them by saying that, in order to establish that each monad represents—i.e., expresses—the universe, what we need are precisely the notions of completeness and compossibility, so that the latter would not be included in “*le reste*,” and therefore would not be consequences of the fact that each monad represents—i.e., expresses—the universe.

26. As Leibniz himself points out in a letter to Jaquelot, “The miracle or rather the wonder consists in this, that each substance is a representation[i.e., an expression] of the universe according to its point of view. This is the greatest richness or perfection one can attribute to creatures and to the operation of the Creator” (*GP* III, 464-465). And here one is reminded of Bossuet’s remark, “Voilà, Messieurs, les spectacles que Dieu donne à l’univers. . . .”

27. In the Introduction to their translation of the *Discourse*, Lucas and Grint claim that the “new picture or metaphor of the universe as a system of representation provided the impulse which enabled Leibniz to synthesize his . . . various separate philosophical principles in the *Discourse*,” p. xiv. This, however, as we have seen in the main text, is only *one* of the *two* sides of the coin.

28. In this connection, cf. the following claim by L. J. Russell: “The one new element in the *Discourse* is the doctrine that in every true affirmative proposition the predicate is in some way contained in the subject; and I should say that it was this principle which supplied the impulse to the systematic expression of Leibniz’s views in the *Discourse*. What it did was to give the idea of representation a new and logically justifiable form,” *Philosophy* 30 (1955): 84.

29. See my “Reference, Essentialism and Modality in Leibniz’s Metaphysics,” pp. 89-90. (Also C, 11.)

30. Incidentally, it is interesting to notice that the view that all things are connected appears sometimes to be regarded as metaphysically ultimate by Leibniz: “God sees in each portion of the universe the whole universe, owing to the perfect connexion of things” (*GP* VI, 329); “it must be known that all things are *connected* in each one of the possible worlds” (*GP* VI, 107).

31. Just recall that it is because all things are connected that the mirroring principle *must* hold; that compossibility is an essential component of what makes mirroring possible; and that the view that all things are connected leads to the view that the concepts exemplified by individual substances are at least mutually compossible.

32. Here I have in mind Dummett’s view that “the question as to the nature of reality is also the question what is the appropriate notion of truth for the sentences of our language,” “The Justification of Deduction,” *Proceedings of the British Academy* (1974): 29.